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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/602,997	06/23/2003	Yi Cheng	MP0289	1613

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HARNESS, DICKEY & PIERCE P.L.C.  
5445 CORPORATE DRIVE  
SUITE 400  
TROY, MI 48098

EXAMINER

LAM, TUAN THIEU

ART UNIT	PAPER NUMBER
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2816

DATE MAILED: 03/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/602,997

Applicant(s)

CHENG, YI

Examiner

Tuan T. Lam

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 16 March 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) See Continuation Sheet is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-3, 5, 6 and 8 is/are allowed.
- 6) ☒ Claim(s) See Continuation Sheet is/are rejected.
- 7) ☒ Claim(s) See Continuation Sheet is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

Continuation of Disposition of Claims: Claims pending in the application are 1-3,5,6,8,10-20,22-32,34-44,46-56,58-68,70,71,73-80,82-92,94-104 and 106-140.

Continuation of Disposition of Claims: Claims rejected are 10-18,20,22-30,32,34-42,44,46-53,58-65,70,71,73-77,82-91,94-103,106-115,117,119,121,123,125,127,129,131,133,135,137 and 139.

Continuation of Disposition of Claims: Claims objected to are 19,31,43,54-56,66-68,78-80,92,104,116,118,120,122,124,126,128,130,132,134,136,138 and 140.

### **DETAILED ACTION**

The amendment filed 3/16/2005 has been entered. Claims 1-3, 5-6, 8, 10-20, 22-32, 34-44, 46-56, 58-68, 70-71, 73-80, 82-92, 94-104 and 106-140 are pending. The finality of the Office action dated on 1/19/2005 has been withdrawn in view of new grounds of rejection as follows:

#### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 17, 62-63, 73-75, 83, 86-90, 98, 101-102, 110 and 113-114 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 17, the recitation of "second programmable control signals" in line 3 lacks proper antecedent basis. It is suggested to change to --the second programmable control signal--.

In claim 62, the recitation of "the first programmable control signal" is indefinite because it is misdescriptive. It is supposed to be "the second programmable control signal". Appropriate correction is required.

In claim 73, the recitation of "wherein the selectively providing hysteresis offset" in line 10-11, "the second programmable control signal" in line 12 lacks proper antecedent basis. Correction is required.

In claim 74, the recitation of "the first programmable control signal" is indefinite because it is misdescriptive. It is supposed to be "the second programmable control signal". Appropriate correction is required.

In claim 83, the recitation of “a third programmable control signal” lacks proper antecedent basis because there is no second programmable control signal recited.

In claims 86-87, the recitation of “the first programmable control signal” is indefinite because it is misdescriptive. It is supposed to be “the second programmable control signal”. Appropriate correction is required.

In claim 98, the recitation of “the first programmable control signal” is indefinite because it is misdescriptive. It is supposed to be “the second programmable control signal”. Appropriate correction is required.

In claim 101, the recitation of “the third programmable control signal” lacks proper antecedent basis.

In claim 110, the recitation of “the first programmable control signal” is indefinite because it is misdescriptive. It is supposed to be “the second programmable control signal”. Appropriate correction is required.

In claim 113, the recitation of “the third programmable control signal” lacks proper antecedent basis.

Claims 63, 75, 88-90, 102 and 114 are indefinite because of the technical deficiencies of claims 62, 73, 83, 87, 101 and 113.

#### **DETAILED ACTION**

#### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 10-17, 22-29, 34-41, 46-53, 58-65, 70-71, 76-77, 73-75, 117, 123, 125, 131, 133 and 139 are rejected under 35 U.S.C. 102(e) as being anticipated by Nguyen et al. (USP 6,504,405).

Figure 7 shows a device comprising a first programmable circuit (635, 640) operable to selectively provide hysteresis offset in response to a first programmable control signal (F1, F2, see column 5, lines 29-37, column 6, lines 10-25), comparator (620, 625, 630), responsive to the first programmable circuit, to receive a first and a second signals (Vref, VM) and compare the first signal and the second signal with a applying the hysteresis offset to the second signal, wherein the comparator circuit provides a digital output signal in response to the results of the comparison, and a second programmable circuit (665, 730, 670, 735, 725, 720) in communication with the comparator circuit and operable to selectively provide a hysteresis delay in response to the a second programmable control signal (F3, F4) (the capacitors acts as delay means for delaying output of the comparator), wherein the comparator circuit compares the first signal and the second signal with applying the hysteresis delay as called for in claims 10, 22, 34, 46, 58, 70, 73, 117, 123, 125, 131, 133 and 139.

Regarding claims 11, 23, 35, 47, 59, 71, the device is capable of being programmed by a user through the control signals F1-F4 and the device is also capable of being used for boundary scan testing.

Regarding claims 12, 24, 36, 48, 60, the first and second signals are mixed signals.

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Regarding claims 13, 25, 37, 49, 61, the first programmable circuit (635, 640) includes programmable impedance elements (645, 650, 655, 660, 705, 710) for selectively setting the hysteresis offset in response to the first programmable control signal F1 and F2.

Regarding claims 14-15, 26-27, 38-39, 50-51, 62-63, 74-75, the transistors of the first programmable circuit act as current source when it is turned on. Therefore, the limitations of programmable current source are met.

Regarding claims 16, 28, 40, 52, 64, 76, the programmable capacitance elements are seen as capacitors 665, 730, 670, 735 of figure 7.

Regarding claim 17, the switchers are seen as the transistors inside the inverters 720 and 725 of figure 7.

Regarding claims 29, 41, 53, 65, 77, activating capacitors are achieved by the switches inside the inverters 720 and 725.

5. Claims 83, 89-90, 95, 101-102, 107, 113, 114, 121, 129, 137 are rejected under 35 U.S.C. 102(e) as being anticipated by Nguyen et al. (USP 6,504,405).

Figure 7 shows a device comprising a first programmable control circuit (635, 640) operable to selectively providing an output loading on an output circuit in response to a first programmable control signal (F1, F2), a comparator circuit (620, 625, 630), first input signal (VM) a second input signal (VREF), a digital output signal DATA, DATA/, a second programmable circuit (665, 670, 730, 735, 720, 725) in communication with the comparator circuit and operable to selectively provide a hysteresis delay in response to a third programmable control signal (F3, F4), wherein the comparator circuit receives the first signal and the second signal with applying the hysteresis delay as called for in claims 83, 95, 107, 121, 129, 137.

Regarding claims 89, 101, 113, the programmable capacitance elements are seen as capacitors 665, 730, 670, 735 of figure 7.

Regarding claims 90, 102, 114, the switchers are seen as the transistors inside the inverters 720 and 725 of figure 7.

6. Claims 117, 125, 131, 133 and 139 are rejected under 35 U.S.C. 102(e) as being anticipated by Deas et al.(US 2002/0070774). Figure 1 shows a device comprising a hysteresis offset circuit (21) that generates a hysteresis offset, a hysteresis delay circuit (30) that generates a hysteresis delay, and a comparator circuit (10) that receives first and second input signal and communicates with said hysteresis offset circuit and said hysteresis delay circuit, that generates a first output signal when said first input signal exceeds said second input signal plus said hysteresis offset for a period greater than said hysteresis delay (delay is half period of input signal, paragraph 0029), and that generates a second output signal when at least one of said first input signal does not exceed said second input signal plus said hysteresis offset and/or when said first input signal does not exceed said second input signal plus said hysteresis offset for said period as called for in claims 117, 125, 131, 133 and 139.

7. Claims 18, 20, 30, 32, 42, 44, 82, 84, 85, 86, 87, 88, 91, 94, 96, 97, 98, 99-100, 103, 106, 108-112, 115, 119, 127 and 135 are rejected under 35 U.S.C. 102(e) as being anticipated by Nguyen et al. (USP6,504,405). Figure 7 of Nguyen et al. shows a first programmable circuit (635, 640) operable to selectively provide a hysteresis offset in response to a first programmable control signal (F1, F2), a comparator circuit (620, 625, 630) that receives first and second input signals (VM, Vref) and provides a digital output signal DATA, a second programmable circuit (665, 670, 730, 735, 720, 725) in communication with the comparator and operable to selectively



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provide control of magnitude of the digital output signal (the connected capacitor also control the level of the data output signal. See column 6, lines 33-34) as called for in claims 18, 20, 30, 32, 42, 44, 82, 94, 106, 119, 127 and 135.

Regarding claims 84, 96 and 108, the device is capable of being programmed by a user through the control signals F1-F4 and the device is also capable of being used for boundary scan testing.

Regarding claims 85, 97 and 109, the first and second signals are mixed signals

Regarding claims 86, 98 and 110, the impedance elements (645, 650, 655, 660, 705, 710) for selectively setting the hysteresis offset in response to the control signal F1 and F2.

Regarding claims 87-88, 99-100 and 111-112, the transistors 645, 650, 655, 660, 705, 710 act as current source when it is turned on. Therefore, the limitations of programmable current source are met.

Regarding claims 91, 103 and 115, the control signal F3 and F4 control the level of output signal.

8. Claims 119, 127 and 135 are rejected under 35 U.S.C. 102(e) as being anticipated by Forejt (US 2002/0060607. Figure 3 of Forejt shows a hysteresis offset circuit (50'), an output loading (86) that generates an output loading adjustment (the adjustment is achieved by the on and off of control signal PD which turns on/off the adjustment transistor 86), a comparator circuit (76, 77) receives first and second input signals, communicates with said hysteresis offset circuit and includes an output circuit (85, 87) that communicates with said loading circuit, that generates a first output signal or a second output signal based on said first input signal, said

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second input signal, said hysteresis offset and said output loading adjustment as called for in claims 119, 127 and 135.

*Allowable Subject Matter*

9. Claims 1-3, 5-6 and 8 are presently allowed.
10. Claims 19, 31, 43, 54-56, 66-68, 78-80, 92, 104, 116, 118, 120, 122, 124, 126, 128, 130, 132, 134, 136, 138 and 140 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
11. Claims 86-88, 98 and 110 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

*Conclusion*

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan T. Lam whose telephone number is 571-272-1744. The examiner can normally be reached on Monday to Friday (7:30 am to 6:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, TIMOTHY P. CALLAHAN can be reached on 571-272-1740. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'Tuan T. Lam', with a long horizontal stroke extending to the left.

Tuan T. Lam  
Primary Examiner  
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3/28/2005